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A DAY'S BEATING.

BY C. A. FROST,

Framingham, Mass.

The rosy dawn of this early June morning has been followed by dull gray, clouds which, slowly massing across the sky, presage rain for the afternoon. A good day for the beating umbrella both for catching beetles and for shelter on the way home.

My preparations for a day in the woods are generally made the evening before, or I am sure to forget something in the hurried morning start. A large, wide-mouthed bottle for the bulk of the catch and several small vials for the minute things or paired specimens that should be kept separate, filled with alcohol (denatured is just as good for the purpose), are deposited in pockets convenient for instant use. A small cyanide bottle for specimens whose colour will not stand alcohol, and a large cyanide jar for Lepidoptera or other insects interesting to brother collectors, are placed in side pockets or in the corduroy bag that is slung over my shoulder. This bag contains: a large knife, a trowel, a drinking cup, a fine wire strainer of five inches diameter for dipping up water beetles, an old pair of gloves to protect the fingers when much collecting is done under stones, two or three tin boxes to which I transfer Lepidoptera and Hymenoptera as soon as they are dead (to prevent rubbing), a white cloth with loops at each corner to hold two diagonally crossed sticks which will keep the cloth spread so that it can be used in place of the umbrella if that instrument collapses (as often happens) at the most interesting point of the capture. I also have a net that fits into the bag, made of brass wire leaded into a brass union, which in turn is screwed into a brass increaser; into the larger end of this a stick can be screwed and fastened by a tack through a hole drilled in the rim of the increaser. Nets of several sizes or kinds can be carried along, and at once interchanged by merely screwing them into the increaser. Last but not least I make sure that my forceps are in the sheath that is pinned on the inside of my coat at the most convenient height for hurried seizing.

Thus equipped I hasten down the side streets to the railroad tracks that lead to Sherborn town. Half a mile brings me to an interesting swamp beside the track and, although within a stone's throw of a busy foundry, I am seldom able to get past it without investigating its possibilities. In this swamp all the wood has now been cut off but a few old willows, and the dead and dying bushes and young trees often yield some very good things. It is here that I take *Pogonocherus salicicola* Casey, and the species was determined for me by its describer from specimens that emerged from dead twigs collected from these willows.

Splashing through the ankle-deep brown water I cannot resist an attempt

to get something from the bunches of live willow sprouts that have escaped the grass fires. The attempt always brings a multitude of *Crepidodera helxines* L., or a shower of brown-tail moth caterpillars into the umbrella, and to-day is not the exception. I have occasionally found a few *Rhynchites cyanellus* Lec. among the usual vermin.

My beating stick is any handy dead limb of suitable length, and it can easily be replaced. The blows on the scraggly old dead willows shower down bits of bark and moss with an occasional *Allandrus bifasciatus* Lec., *Acoptus suturalis* Lec., or *Chramesus icoriæ* Lec. From the smaller trees I get a score of *Laemophlaeus adustus* Lec. and *convexus* Lec., an occasional *biguttatus* Say or *fasciatus* Mel., *Psenocerus supernotatus* Say, *Orchesia castanea* Melsh., and still more rarely *Pogonocherus salicicola*, *Lepturges querci* Fitch and *facetus* Say. Across the track the alders and fire-killed bushes yield numbers of *Laemophlaeus* and *Molania* which are barely discernible as minute dots crawling on the dark umbrella. Some of the Cerambycids remain perfectly still on the cloth, and are occasionally picked from the very edge where the least motion would tumble them to safety.

New fields lure me on down the track half a mile more to the woods and meadows, but I must always stop to take a whack at the clump of poison sumac growing by the fence on the edge of the swamp that stretches away to the brook beyond the higher ground. It yields as usual only *Psenocerus supernotatus*, and the chokecherry and red maple are even less productive, although I have taken some good things from the sprouts of the latter, notably *Purpuricenus humeralis* Fab., *Limonius aurifer* Lec. (in Maine), and *Corymbites nigricornis* Panz. (typical *nitidulus* Lec.) once in numbers.

Near the track fire has killed all the large trees of the high ground, and it has grown up with bunches of blueberry, amelanchier and sweet fern. The former yields nothing at all generally, but the amelanchier I have now visited at the most favourable time, and when I have finished with them I have several specimens of the rare *Agrilus vittaticollis* Rand. and a set of *Saperda candida* Fab. The latter I have never taken otherwise, except once only, when I suddenly saw one balanced on the tip of a dead sprout almost between my legs.

Travelling east again down a wood-road, I visit a few white pines that have escaped the fires. The lower branches of these I am able to reach with a long limb, and almost the first blow brings down a beautiful green beetle, *Chrysobothris harrisi* Hentz, a very welcome find. I attack the trees with renewed vigour when a sharp sting in the vicinity of my collar bone causes me to suspend operations with visions of a ferocious, white-faced hornet probing about my jugular vein. Hastily throwing off my coat and bag I frantically try to dislodge the intruder by tearing open my shirt and getting head down over the umbrella, for entomological curiosity compels me to search out the identity of the insect that has violated the sanctity of my person. At intervals during these manoeuvres, when the clothing binds the insect, it deliberately, but with unexpected moderation, punctures my skin, selecting five different places before it is released and falls to the umbrella; it is a yellow hymenopter whose identity is unknown to me. After arraigning the intruder in appropriate, if not ethical, language the search for *C. harrisi* is continued with one more specimen as a reward. In Maine *Corymbites medianus* Germ., and *propola*

Lec., and *Harmonia picta* Rand. are common fruit of the white pine, but not here. I have taken *Rhinomacer elongatus* Lec. in numbers and *Dinoderus substriatus* Payk. sparingly by beating cut pine tops when the needles were dead enough to fall.

From these trees I wander through the red maple saplings, speckled alder and blueberry bushes to the edge of the meadow with its gently-waving grasses and tangled cranberry vines. I recline at ease on the soft grass on the bank of a slowly flowing brook, and watch the crows silently flying to and from their nests that I know are hidden in the woods beyond. *Dineutes* and *Gyrinus* are whirling and spinning on the water at my feet. The tiger beetles, *C. repanda* Dej., are hunting on the patches of white sand of the further bank. To the right is a grove of waving pines, the green of their needles contrasting pleasingly with the darkness of their trunks; in front of me are tall chestnuts and oaks; to the left of the green meadow is traversed by the brook that disappears in a sudden bend behind the oaks and chestnuts. Many happy hours have I spent beside this brook, and again I recall the day I swept *Leptura deleta* Lec. from the *Spiræa* blossoms almost within the shade of the murmuring pines; the time I almost got *Leptura subhamata* Rand. on the same flower, and the plant which bore it is now within my sight. How I pawed around in the dead grass on hands and knees on the soggy meadow bottom for a full hour after the elusive specimen, and with what regrets I finally gave up the quest. And so each spot recalls some entomological event that is again enacted as I dream beside the winding stream. A spotted turtle goes pawing his course down along the bottom of the brook and reminds me that I must be on the move, for it is nearing noon, and although the rain still holds off it will not spare me much longer.

I must try the grove of young pines half a mile further on for I have found that pines and other evergreens along the edges of a wood are the hiding places of many beetles in cloudy weather, and even in sunny weather after 4 p.m. or before 10 a.m. I have also had wonderful luck sweeping *Alnus incana* bushes in Maine at sunset, taking many rare things in numbers, such as *Elatér sanguinipennis* Say, and *semicinctus* Rand., *Cardiophorus convexulus* Lec., *Melanotus leonardi* Lec., *Corymbites hamatus* Say, *Lyctus striatus* Melsh., and *opaculus* Lec., *Saperda obliqua* Say, and *lateralis* Fab., *Oberea pallida* Casey, *Agrilus pensus* Horn and many other lesser lights. By beating *Alnus* sprouts when the sun was shining in the afternoon I once took many *Dicerca caudata* Lec., *Eupristocerus cogitans* Web., and *Oberea pallida* in Maine. In Massachusetts I have had no such good luck with *Alnus*, and can only record *Anomala lucicola* Fab. *Harmonia similis* Rand. and *Adalia frigida* Schn., all of which are rather uncommon in this locality.

Down the brook, ignoring the fine sweeping grounds on either side, I hasten on towards the rocky hill fringed with scattered pitch pines and topped with small oaks, hickories and well-browsed hazel bushes. On the south slope is an open grove of young white pines that should well repay a visit. The first tree gives me a regular shower of *Dichelonycha albicollis* Burm. and *Glyptoscelis pubescens* Fab., both of which are well-known products. A thorough canvass of the trees yields nothing else, but a barberry bush in flower drops an *Elatér collaris* Say into my umbrella to lighten the disappointment.

I try the hickories, which on sunny days may have some *Anthaxia quercata* Fab. (and later, in July, *Dicerca lurida* Fab.), *Saperda lateralis* Fab. or *Tymnes tricolor* Fab., but nothing appears except *Sinoxylon bidentatum* Horn from the dead twigs. The hazel bushes are also non-productive to-day except for *Chlamys plicata* Fab., which can be swept by dozens from sweet fern at times, and a few *Attelabus rhois* Boh. If the sun were shining I should expect *Agrilus otiosus* Say in numbers, *arcuatus* Say (variety *coryli*) and *polius* Say, which so resemble each other in colour as to be indistinguishable without a lens, *Calligrapha rhoda* Knab, and possibly a few *Agrilus defectus* Lec. and *cephalicus* Lec.

The pitch pine (*Pinus rigida*) gives up a few *Melanotus*, one *Corymbites triundulatus* Rand. and one *Harmonia picta* Rand., which are both rare here. At sunset I have had fine success with a few of these trees at the top of a small hill, taking *Chrysobethris floricola* Gory, *Enoclerus nigrifrons* Say, *Ernobius luteipennis* Lec., *Pogonocherus mixtus* Hald., *Eupogonius tomentosus* Hald., *Corymbites splendens* Ziegl., and *propola* Lec. At another time I found the twigs swarming with *Anomala oblivia* Horn.

The scattered cedars (savins) of the pasture here have never yet paid me for the time spent on them, and I might say the same of live elm (unless one is looking for the elm leaf-beetle), ash, apple, chestnut and, in Maine, the spruce and fir, although I see no reason why the two latter should not make as good hiding places as the pines and hemlocks. It is very probable that the time and place entirely govern success in beating, and while I always give them a stroke or two, elm, apple and cedar are absolutely hopeless to me. The oaks are the most prolific as a whole, but must be visited on sunny days, preferably along towards 5 p.m., as the insects are then less active and can be secured without the losses that are sure to occur by quick flight during the heat of the early afternoon. Among the more interesting things from oaks are: *Chrysobethris azurea* Lec. (dead white oak), *Agrilus masculinus* Horn, *acutipennis* Mann., *auricomus* Frost (red oak), *crinicornis* Horn (raspberry leaves in Maine), *Elytroleptus floridanus* Lec., *Bassareus mammifer* Newm., *Rhynchites aeneus* Boh., *Auletes ater* Lec., *Pterocolus ovatus* Fab., and several species of *Balaninus*.

The rain is now gently falling in fine scattered drops as I stop by the brook to try the young poplars and alders growing thick over a small area near the railroad. The former gives me one *Cotalpa lanigera* Linn., and plenty of *Phyllodecta vitellinae* Linn. At other times I have taken an occasional *Agrilus anxius* Gory, and *Saperda concolor* Lec. with *Zeugophora puberula* Cr. turning up in large numbers twice from poplar. From the alders I now get a single *Dicerca pugionata* Germ., which rounds out a perfect day as I have now taken my second specimen of this fine species. *D. caudata* Lec. is rarely seen resting on the side of the stems of the young alders, from whence it may, sometimes, be knocked into the net or umbrella.

Back along the brook I hasten while the rain increases in intensity with every intermittent shower. I tarry a few moments in the heavy growth of oaks and chestnuts through which the rain has not yet penetrated. Here I bring down *Melanotus castanipes* Payk., two species of *Platydemia*, *Phloeërya liturata* Lec., and *Agriotes oblongicollis* Melsh. in numbers by vigorous kicks against the dead saplings. I once brought down a shower of *Bostrychus armiger* Lec. from a dead white oak sapling by this method; it was in a thick wood

and none of the other oaks near by gave me a single specimen, and I have never happened on them again. In Maine I have beaten the rare *Enchodes sericea* Hald., *Microbregma emarginatum* Duft., *Oligomerus obtusus* Lec. and *Elater apicatus* Say from the dead lower limbs of large sugar maples.

A final kick at a dead stub brings down the whole top smashing into the umbrella with disastrous results and, casting away the now utterly useless implement, I plod along in the pouring rain over the railroad ties towards home. When I arrive there I am soaking wet but happy in the memories of the day's experiences, and each time I open my boxes these memories will be reflected from the shining armor of *Dicerca pugionata* and *Chrysobothris harrisi*.

NOTES ON COCCIDÆ. V. (HEMIPTERA).

BY G. F. FERRIS,
Stanford University, California.

(Continued from Can. Ent., Vol. 51, p 253.)

Genus PROTODIASPIS Ckll.

The original description of this genus was not sufficiently detailed, and much doubt has existed as to its exact nature. Through the kindness of Professor Cockerell I have been enabled to examine a slide mount of *P. parvula* Ckll., the type of the genus, and find it possible to extend somewhat our knowledge of this and related species.

The original description of the genus was as follows: "A genus of Diaspinæ secreting no scale but the females enveloped in cottony secretion, the male pupæ resembling those of Diaspis, but extremely short. No grouped circumgenital glands." To this genus there have previously been referred, (with some doubt) *Protodiaspis anomala* Green, *P. tridentata* Ferris, *P. edentata* Ferris, *P. agrifoliæ* Essig and *Fiorinia syncaripæ* Maskell: Of these only *P. agrifoliæ* Essig can be considered as congeneric with the type, and I am here naming a new genus for the others.

I am unable at present to offer any very precise definition of the genus *Protodiaspis*, partly because of certain possible errors in the original description that I am not able to clear up, partially because of the need of more information concerning the immature stages and partially because of the hazy limits of certain other genera. I present, however, the following characterization, this being based upon *P. parvula*, *P. agrifoliæ* and two other species that I am here describing as new.

Coccidæ referable to the subfamily Diaspinæ, secreting a distinct scale or possibly in some cases merely loose secretion; the scale of the female circular with the exuviae central, that of the male elongate with the exuvia at one end, in both sexes white; second exuvia of female large but not at all, or at the most only partially, enclosing the adult; tubular ducts (Fig. 1B) of the type seen in *Diaspis* and related genera, all small, those of the pygidium scattered; pygidium usually weakly or not at all chitinized; circumgenital pores present or absent; lobes of the pygidium present or absent. Small species (about .5 mm. long) as far as known infesting only oaks.